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First record of *Resupinatus poriaeformis* (*Agaricomycetes*) from South America

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Abstract — *Resupinatus poriaeformis* is reported as new to South America. Description of the species and a key to the accepted species of the genus reported to South America are provided.

Key words — *Tricholomataceae*, diversity

Introduction

Resupinatus was validated by Gray in 1821 and comprises about 15–20 valid species (www.indexfungorum.org; http://www.cbs.knaw.nl; Kirk et al. 2008). It is a cosmopolitan genus with small, resupinate, or pendent basidiomata, a partially gelatinized context, and clamped hyphae (Singer 1962; Thorn 1986; Pegler 1986). Recently Thorn et al. (2005) placed some cyphelloid fungi or "reduced agarics" with cup-shaped basidiomata into *Resupinatus* based on molecular and morphological studies.

Although some species of *Agaricales* have been registered in mangroves, there are no reports of *Resupinatus* from this ecosystem (Hibbett & Binder 2001; Baltazar et al. 2009). However there are five reports of the genus from South America: *R. alboniger* (Pat.) Singer 1978, *R. applicatus* (Batsch) Gray 1821, *R. dealbatus* (Berk.) Singer 1973, *R. graminum* (Singer) Singer 1973, and *R. hyalinus* (Singer) Thorn et al. 2005. Of these, *R. applicatus, R. dealbatus,* and *R. hyalinus* occur in Brazil (Singer 1943; 1973; 1989; Pegler 1997; Thorn & Barron 1986). We present a description of a new occurrence and a key to the *Resupinatus* species in South America.

Material & methods

Brazilian mangroves extend from 4°30′N to 28°30′S and despite the limited floristic diversity vary significantly in plant growth form, species distribution patterns, and stand structure (Schaeffer-Novelli et al. 1990). From March 2009 to March 2010, 36 field trips were undertaken in four mangroves in Pernambuco state in northeast Brazil: Maria Farinha (07°51′24.8″S 34°50′32.7″W), Itamaracá (07°46′52.6″S 34°52′53.3″W), Maracaípe (08°32′22.8″S 35°00′29.1″W), and Rio Formoso (08°41′20.8″S 35°06′06.6″W).

After collection, the specimen was analyzed macro- (shape, color, hymenial surface) and micromorphologically (hyphal system, presence/absence and measurements of sterile structures and basidiospores). Microscopical observations were made from slide preparations with 5% KOH, stained with 1% of aqueous phloxine, and Melzer's reagent (Ryvarden 1991). Color designation followed Watling (1969). The material was incorporated to URM.

Scanning electron microscopy (SEM) was conducted at the Laboratório de Microscopia Eletrônica (DF/UFPE). Sections were removed from dried basidiomata and mounted directly on aluminum stubs using carbon adhesive tabs. The fragments were coated with 8–13 nm of gold using a Baltec SCD050 sputter coater and examined with a JEOL JSM-5900 scanning electron microscope.

Taxonomy

Resupinatus poriaeformis (Pers.) Thorn, Moncalvo & Redhead, Mycologia 97(5): 1148 (2006) FIGURE 1–2

≡ *Peziza anomala* var. *poriaeformis* Pers., Syn. meth. fung. 2: 656 (1801)

BASIDIOMATA annual, resupinate, cup-shaped, up to 2–3mm, gregarious, subiculum tomentose to cottony, up to 0.1 mm, grayish (smoke grey 34 to mouse grey 35), without reaction in KOH. HYMENIAL SURFACE smooth, dark grey (drab 33 to mouse grey 35). HYPHAL SYSTEM monomitic; generative hyphae hyaline, clamped, thin-walled. BASIDIA hyaline, clavate, guttulate, 25–30 × 5–7 µm, 4-sterigmata. CYSTIDIA absent. DENDROHYPHIDIA present. BASIDIOSPORES globose, hyaline, thin-walled, smooth, inamyloid, acyanophilous, 4.5–5 µm in diam.

MATERIAL EXAMINED: **BRAZIL**. **PERNAMBUCO**: Mangrove of Maria Farinha, on dead *Rhizophora mangle* L. (*Rhizophoraceae*), 28.VI.2009, G.S. Nogueira-Melo et al. NM006 (URM 82257).

REMARKS: *Resupinatus poriaeformis* is characterized by small grey cup-shaped basidiomata and globose basidiospores (4.5–5 µm diam., subglobose and ≤ 6 µm in the literature). The species resembles *R. hyalinus* based on the basidioma size and smooth hymenial surface. However, the basidiospores of *R. hyalinus* are elliptical (6–6.5 × 3–3.4 µm). The other species reported from South America have larger basidiomata (0.5–4 cm) and lamellate hymenial surface. Additionally, the basidiospores are ellipsoid (5.8–7.8 × 2.7–3.6 µm) in *R. alboniger*, cylindrical (5–8 × 2.5–3 µm) in *R. dealbatus,* and subglobose (4.4–6

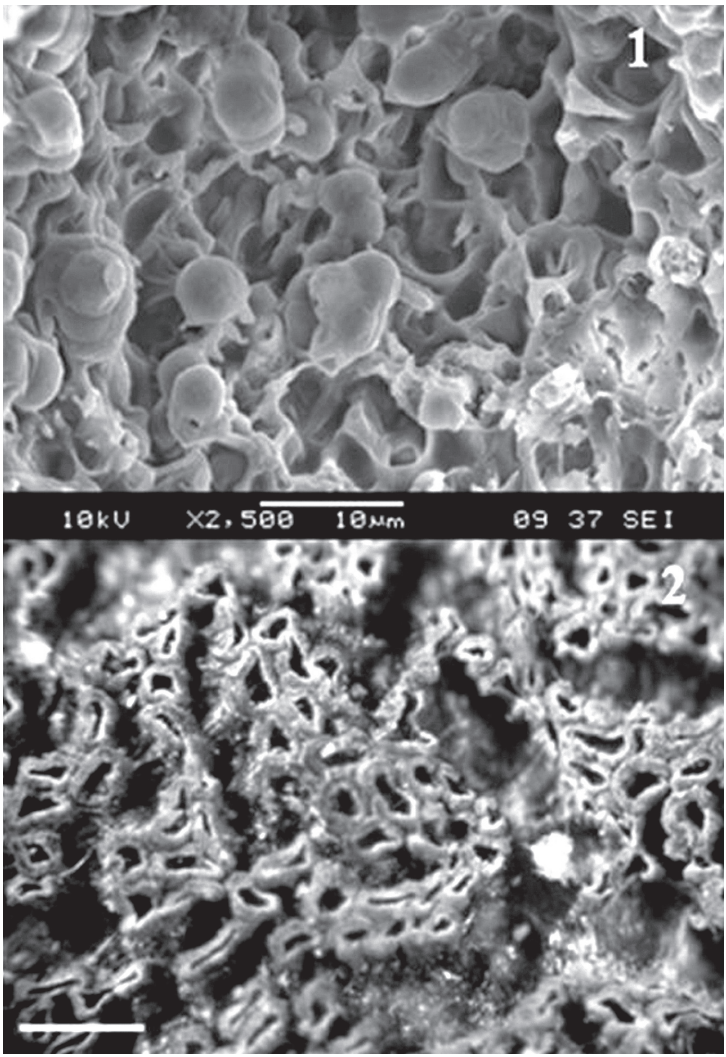

Fig. 1–2. *Resupinatus poriaeformis*. 1. Basidiospores, 2. Basidiomata. Scale bar = 2 mm.

× 4–4.8 µm) in *R. applicatus* (Corner 1981; Ryvarden & Gilbertson 1993; Singer 1943, 1962; Thorn et al. 1986).

Distribution — Ryvarden & Gilbertson (1993) and Bernicchia (2005) report this species as cosmopolitan. Records are known from Honduras, Italy, New Zealand, Puerto Rico, South Africa and Sweden (Cunningham 1963;

Ryvarden 1988; Ryvarden & Gilbertson 1993; Pennycook & Galloway 2004; Thorn et al. 1986, 2006; Bernicchia 2005, O database).

Key to the *Resupinatus* species recorded from South America

1a. Hymenial surface lamellate 2
1b. Hymenial surface smooth 5
2a. Basidiomata reniform to flabelliform up to 2.5–4 cm ..... *R. dealbatus*
2b. Basidiomata cupulate to flabelliform up to 1 cm 3
3a. Cystidial elements lacking ..... *R. graminum*
3b. Cystidial elements present 4
4a. Basidiospores subglobose, 4–4.5 x 5 µm ..... *R. applicatus*
4a. Basidiospores ellipsoid to cylindrical, slightly curved 5.8–7.8 × 2.7–3.6 µm ..... *R. alboniger*
5a. Basidiospores globose to subglobose, 4.5 × 6 µm diam. ..... *R. poriaeformis*
5b. Basidiospores ellipsoid, 6–6.5 × 3.3–4 µm ..... *R. hyalinus*

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